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# IS THERE ANY RELATION BETWEEN INTELLECTUAL CAPITAL AND THE CAPITAL STRUCTURE OF A COMPANY? THE CASE OF POLISH LISTED COMPANIES

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**Abstract**

This study investigates the relationship of the intellectual capital of a company (proxied by its intangible assets), with leverage and equity and capital structure. Our empirical results indicate that there is a negative relation between the intellectual capital (intangible assets) of a company and its leverage based on the Warsaw Stock Exchange main market and NewConnect alternative market. Moreover, the equity capital is found positively related to the level of intangibles in each of the two markets. These results support the thesis that intellectual capital (intangible assets) influences the capital structure of a company.

**JEL classification:** G32
**Keywords:** intangible assets, intellectual capital, leverage, equity

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## Introduction

Markets and economic models have been shifting in orientation from traditional goods production to innovation. Up to the middle of the last century people were purchasing goods to satisfy their basic needs and companies were growing because more and more people could afford to buy new products. Nowadays the situation is different, clients expect innovative products and make companies work on the innovations. Moreover, companies create additional demand ever since marketing became a strong power in business. In this innovation focused process there are scientists involved as well as investors with different risk preferences who put their money in companies with different risk levels according to the stage of product development. The knowledge of the scientists and their abilities are part of the company's intellectual capital as long as they work for the firm.

The concept of intellectual property is not new. In 1474, the state of Venice had a law to protect inventions by a form of patent. The first copyright system was born around 1440 by the invention of movable type and the printing press. Intellectual property in the last decades has been recognized by both academicians and practitioners as the assets that enhance corporate value and offer competitive advantages to the underlying company versus its competitors. Idris (2003) states that intellectual property is a "power tool" for economic growth and its maximum potential is not yet used by all countries. According to Sitar and Vasic (2004) there are several definitions for intellectual capital in the literature. In a general sense intangible assets are knowledge, information, creativity and inventiveness. More specifically they can be:

1) intellectual capital,
2) intangibles/intellectual assets of the balance sheets,
3) and knowledge capital or assets.

These terms in most cases are used interchangeably. Edvinsson (1997) considers them a source of immaterial or hidden assets that usually do not appear on the balance sheet. Brooking (1996) defines them as the difference between the accounting value of a firm and the value someone is willing to pay to acquire the firm. This is actually the description of the term "goodwill" that most researchers use. Roos and Roos (1997) regard them as the sum of knowledge that all members of a company have and is translated in practice as patents, trademarks and brands. Stewart (2007) defines them as intellectual equipment such as knowledge, information, intellectual property and experience that can be used to generate wealth for the company. Similarly, Harrison and Sullivan (2000) regard them as knowledge that can be transformed into profit for the company. Finally, there is the definition of IAS (International Accounting Standards) 38 whereby intangible assets are recognized as non-monetary assets of the company without a physical presence.

The common characteristic of the various definitions is that they all refer to assets without physical substance that have the prospect and potential to create monetary benefits and profits to the underlying company. Intellectual property is not a finite asset like the tangible assets of a company. It is a broad concept that refers to: patents, trademarks, copyrights, slogans, characters, packaging design, non-compete clauses, proprietary sales methods, effective customer lists, trade secrets, formulae, proprietary training manuals and other knowledge and skills assets.

This study focuses on the Polish market for the specific issues since it is a developing and transition economy and a member of the European Union. Idris (2003) states that in the 1990s, in emerging and developing economies, many policy-makers have recognized the important role of intellectual property and patent laws and have established them to encourage private investment in R&D, foreign direct investment, and growth for their countries. Moreover, the stock market in Poland is divided into two groups: the market for the mature companies with rather traditional businesses and larger size, and the market for younger and smaller companies that have more intangibles in their assets. This is the second reason why the present paper focuses on the Polish market, since there can be a comparison between large versus small companies and less innovative versus more innovative companies with respect to the testable hypotheses examined in the present study.

The objective of this study is to answer the research question of whether intellectual capital determines the financial leverage a firm carries or in other words, determines its capital structure. More specifically, we examine how much debt could be afforded by firms that have more intangible type investment and as a consequence are more intangible-assets oriented. In order to answer the above, several testable hypotheses

are formed regarding whether there is any relation between a firm's debt and its intangible assets and a firm's equity capital and its intangible assets, as well as a comparison between traditional large companies versus smaller ones regarding these issues.

In order to reach its objective, this study is composed of the following sections: the next section presents the motivation with a brief literature review and the testable hypotheses; the third section describes the data set and the methodology; the fourth section discusses and analyzes the results and the last section contains a summary, concluding remarks and future research directions.

## Motivation, Review Of Literature and Testable Hypotheses

Long and Malitz (1985) supported and found empirically that for USA listed companies which form a developed market financial leverage in a firm is determined by the type of investment opportunities the firm faces. If these investment opportunities are observable, then debt contracts can be effective. On the other hand, the effectiveness of bond contracts is reduced if a firm has unobservable investment opportunities such as intangible or firm-specific growth opportunities. In this case, the stockholders of those companies with a high percentage of investment opportunities in intangibles can control the agency costs of leverage only by reducing the amount of risky debt their company carries. Hence, companies that invest more in intangibles such as advertising and R & D investments have a tighter debt capacity. Therefore, the implication is that companies that have a high amount of intangible assets can support less debt compared to those companies that have more investment opportunities in tangible assets such as capital equipment, plant, or maintenance of capital equipment.

These latter companies can afford to have higher levels of leverage, since their investment opportunities are tangible and can be easily observed by the interested parties (present and future bondholders), hence they can be estimated more accurately. In this case, in a rational market, present and potential bondholders will pay the true value of debt, anticipating a lower level of investment (underinvestment) from the firm's owners, the shareholders (Myers, 1977). They can also protect themselves by observing and monitoring the firm's investment opportunities and decisions, hence reducing the financial risk from having high levels of debt.

In the opposite case, where a firm has firm-specific or intangible investment opportunities and assets, potential bondholders cannot estimate accurately those investment opportunities, nor the underinvestment. Therefore, they cannot protect themselves through debt covenants by monitoring the firm's investment decisions and the market will penalize such a firm in case its debt is too high, by reducing its stock price and its value. So, those firms, usually the high growth ones, cannot afford high levels of leverage if they have high levels of intangibles or firm-specific investments, since they cannot be monitored effectively by the market or the bondholders to keep a low level of risk.

Hence, we have the research question of how much debt firms that have more intangible type investment could afford. Based on the above analysis, companies that invest more in intangibles ( in intellectual capital) such as research and development projects and advertising have a tighter debt capacity imposed by the market in general or their bondholders (present and potential), than those firms that invest more in tangible asset investment projects. Therefore the first hypothesis is formed:

$H1_0$: There should be no relation between debt (leverage) and the amount of intangible assets a firm possesses.

$H1_1$: There should be a negative relationship between debt (leverage) and the amount of intangible assets a firm possesses.

Debt is represented in this paper by the following ratios: debt ratio DR and its modifications related to long term-debt LTDR and short-term debt STDR. Ross (1977) tried to explain the use of debt based on a signaling approach, whereby the amount of debt a firm carries signals to the market certain prospects about the status of the underlying firm. Specifically, if a firm has good prospects (in survival and growth) it can afford to issue more debt. On the other hand, if a firm has poor prospects then it cannot issue more debt because it will raise the probability of its bankruptcy and this will reflect upon the value of the company negatively. So, more debt in a company signals better opportunities for that company that may be related to innovativeness.

Jensen and Meckling (1976) supported the idea that as more equity causes dilution of ownership to the company's shareholders and as more debt causes

increases of risk (eg. bankruptcy risk, etc), the optimal combination of equity and debt in a company's capital structure could be reached when the effects of dilution from new equity issues can be equalized marginally with the effects of risk distortions from new debt.

Williamson (1988) introduced the transaction-cost economics (TCE) approach which regards debt and equity not as financial sources, but as alternative governance structures. According to the TCE approach debt is the original source of financing in a company and equity enters in the picture only when the cost of financing by leverage becomes prohibitive mainly due to the bankruptcy risk that increases. The transaction was the basis for his analysis with the dimension of asset specificity as the most crucial. According to Williamson (1988) the projects with low or moderate asset specificity are easier to finance by debt, while as asset specificity becomes greater the projects are easier to finance by equity. Hence, the distinction of a company's assets into tangibles and intangibles depends on their redeployability. He suggested that companies with more redeployable assets could afford more debt. They could do that because these assets could be used as collateral in the markets to raise debt capital for the company's financing needs, supporting the idea that redeployable assets have a low or moderate physical asset specificity and that is why they can be used as collateral easily. On the other hand, according to Williamson (1988) companies that have more non-redeployable assets should be better off if they are financed by equity capital. Non-redeployable assets have high asset specificity and cannot be easily considered as collateral, since it will be difficult to liquidate them and raise money. Therefore, the underlying firm cannot afford to have a high level of leverage, because in the case of high leverage it will have an increase in its risk. So, companies with more non-deployable assets have a low debt capacity. Hence, the following testable hypotheses are formed:

$H2_0$: There should be no relation between equity capital (E/TA) and the amount of intangible assets a firm possesses.

$H2_1$: There should be a positive relationship between equity capital (E/TA) and the amount of intangible assets a firm possesses.

The null hypotheses H10 and H20 if they hold, imply that the capital structure of a firm does not matter in the relationship with the intangibles level. Based on the above it can be concluded that the intangible assets in general are not easily redeployable, thus they can be considered as non redeployable assets and can be financed also by more equity capital. Hall (1992) found that debt was not a suitable source of funds for firms with a substantial level of intangible assets, since the relation between these two variables (debt and intangibles proxied by R&D expenses) was negative and significant for US companies.

Considering the capital structure indicators it can be expected that the more equity invested in a company the lower the long-term debt to equity (DER) or the total debt to equity (TDER) ratios will be. Hence, the third hypothesis is formed:

$H3_0$: There should be no relationship between capital structure indicators (DER) and (TDER) with the amount of intangible assets a firm possesses.

$H3_1$: There should be a negative relationship between capital structure indicators (DER) and (TDER) with the amount of intangible assets a firm possesses.

On the other hand, there is the fact and the practice of the last decades that many companies use their intangible assets, which are their intellectual property, as collateral, in addition to their tangible assets, in order to increase their debt capacity and raise more leverage for their financing needs. Since in this study it has been accepted that more intangible assets imply more innovation for the underlying company and therefore more potential growth and surviving ability, it can be inferred that these companies can afford more leverage. A more recent study, Ozdemir et al. (2012) for the developing economy of Turkey, found empirically that firms with more growth opportunities (as shown by higher R & D investments and activities) have higher debt capacity. They also found that high efficiency is positively related to greater leverage in the companies' capital structure, since the financial strength of the firms is positively associated with high levels of debt. The authors' explanation is that more R&D investments and activities indicate more future growth, hence, the firm's capacity for debt in order to invest is higher.

So, on one hand there are the results of the studies of Long and Malitz (1985) and Williamson (1988) regarding the relation of debt and corporate investment opportunities in intellectual property and on the other, there are the results of Ozdemir et al. (2012) that contradict each other. The former are based on tests in the US market, while the latter are based on tests in the developing market of Turkey. It is intriguing to investigate

this issue for the Polish market, the strongest transition economy in the European Union and compare the results to the above studies. To support the results we will analyze the debt and equity capital structure indicators as values determined by the firm's intangibles.

Another factor that is important in the capital structure of companies is the firm's size. According to the asymmetric information hypothesis small firms are facing higher financial costs in raising external capital since they are exposed to asymmetric information problems. On the other side, large firms have less exposure to the above problems, have better access to the capital markets to raise the needed funds and have lower probability of bankruptcy (Titman & Wessels, 1988; Rajan & Zingales, 1995). According to Rajan and Zingales (1995), Frank and Goyal (2003) and Flannery and Rangan (2005) there exists a positive relation between the size of a firm and its leverage level. Hence, larger firms have a higher amount of debt in their capital structure.

## Model, Data and Methodology

**Critical Variables**

The proxies for the firm's leverage are the variables:

The debt to assets ratio (DR) which indicates the portion of a firm's total liabilities (external capital, debt) in the firm's capital structure. It is calculated as follows:

DR = Total debt / Total Assets

Additionally, two more debt ratios are considered as the modification of DR.

LTDR = Long Term Debt / Total Assets

STDR =Short Term Debt / Total Assets

The debt to equity ratio (DER) which indicates how many times a firm's external capital covers its own capital and is equal to:

DER = Long Term Liabilities / Equity

And the modified DER is also used considering the total debt amount

TDER = Total debt / Equity

The equity amount divided by total assets is used in order to be able to run a test on ratios rather than values

E/TA = Equity / Total assets

Regarding the variable intangibles assets, the intangibles are also divided by total assets.

INT/TA = Intangible Assets / Total assets

All the variables are standardized to reduce the problem of heteroscedasticity by using a size related denominator, such as the variable of total assets (TA), since total assets represent the property state of any company, according to Moss and Stine (1993).

## Test Data

In order to test the above hypotheses the focus was on the Polish companies listed on the Warsaw Stock Exchange and NewConnect Alternative System of Trading (managed by WSE) for the period 1997 to 2012. The first one is the regular market, where the most developed companies are listed, while New Connect has been established for smaller, newer and less developed companies looking for capital to commercialize their products or services. Those companies that did not have continuous data for all the examined period were excluded from our sample. The database used was provided by the Notoria service. The comparison of the results for the two subsamples may show differences between large listed companies, well established in the market with smaller and younger companies. These comparisons may give more insights regarding the capital structure of large and small listed companies that will help practitioners and will enrich the pertinent academic literature, regarding developing markets, since most of the empirical studies are concentrated on the developed markets.

## Methodology

Cross-sectional statistical methods such as correlation analysis and regression analysis are used to test the hypotheses. The regression analysis helps in determining which variables can better explain the dependent variable at each hypothesis. With the help of this statistical tool it can be determined how the intellectual capital of the company through the proxy variable of intangible assets

can affect or explain most of the indicators of leverage and/or equity for the sample companies. Hence the general model is formed:

$$(\text{Dependent variable})t = \alpha 0 + \beta 1 \, (\text{Intangibles})t + ut \quad (1)$$

Where the dependent variables of capital structure mentioned above is represented by one of the various forms of debt (total (DR), long-term (LTDR) and short-term debt (STDR), debt to equity ratio (DER) and the modified one (TDER) and equity (E/TA) are explained each time by the independent variables of intangible assets (INT/TA). In detail, there are the following regressions:

$$(DR)t = \alpha 0 + \beta 1 \, (INT/TA)t + ut \quad (2)$$

$$(LTDR)t = \alpha 0 + \beta 1 \, (INT/TA)t + ut \quad (3)$$

$$(STDR)t = \alpha 0 + \beta 1 \, (INT/TA)t + ut \quad (4)$$

$$(DER)t = \alpha 0 + \beta 1 \, (INT/TA)t + ut \quad (5)$$

$$(TDER)t = \alpha 0 + \beta 1 \, (INT/TA)t + ut \quad (6)$$

$$(E/TA)t = \alpha 0 + \beta 1 \, (INT/TA)t + ut \quad (7)$$

## Analysis of Results

We have done our analysis in Gretl. Table 1 presents the descriptive statistics for the subsample of the WSE market and for the subsample of the New Connect market. Based on the results of the descriptive statistics we can see the main differences between the markets we compare. Debt ratios have similar values, but we should take a look at the equity to total assets ratio (E/TA ) that is much higher for the New Connect Market than for WSE (0,8693 compared to 0,6948) and the intangibles to total assets ratio (INT/TA) that is higher as well (respectively 0,1094 to 0,0295). We can conclude that smaller and younger companies listed on NewConnect finance their assets with equity more that mature companies on the WSE main market and are more innovative in a sense of intangible investment. Specific correlation and regression analysis are given below.

Warsaw Stock Exchange Market

Based on Table 3 for the main market, the results of the correlation between the intangible assets indicator with the debt ratios that are respectively DR, STDR and LTDR are as follows: the correlation coefficient between the debt ratio (DR) and intangibles ratio is weak but negative (-0.028), significant at the 10 % level. The correlation coefficient between the long term debt ratio (LTDR) and intangibles ratio is negative (-0.055), significant at the 5 % level. This result indicates that long term debt is the most important leverage indicator correlated with a firm's intangibles in the main market of Polish companies. The correlation coefficient between the short term debt ratio (STDR) and intangibles is also negative (-0.019) but statistically insignificant. Equity ratio (E/TA) is positively correlated with the intellectual capital ratio with the significance at 5%. Total debt to equity (TDER) is negatively correlated to the INT/T ratio with the 10% significance while the result for DER is not significant even though it is negative. Regression analysis (Table 5) shows that long term debt and total debt ratios (LTDR and DR) are influenced by the intangibles investment negatively and this influence is very weak.

## New Connect Market

Based on Table 4 for the New Connect market, the results of the correlation between the intangible assets indicator with the debt ratios of DR, STDR and LTDR are as follows: the correlation coefficient between the debt ratio (DR) and intangibles ratio is weak but negative (-0.065) and significant at 5% level. The correlation coefficient between the long term debt ratio (LTDR) and intangibles ratio is negative (-0.019), but not significant. This result is in contrast to the main market's equivalent findings. In this sample, only the debt ratio is a significant leverage indicator correlated with a firm's intangibles, since the correlation coefficient between the short term debt ratio (STDR) and intangibles is also negative (-0.036) but statistically insignificant. Equity ratio is positively correlated to the intellectual capital (0.203) with the 5% significance of the results. Regression analysis presented in Table 6 shows that intangibles influence long term debt to equity (DER), long term debt to total assets (LTDR) and total debt to total assets (DR) negatively and the relationship is very weak.

## Conclusions

This study investigated the relationship of the intangible assets of a company, as proxy for its intellectual capital, with the leverage and equity parts of their capital structure. The sample consisted of non-financial Polish companies listed on the Warsaw Stock Exchange from two markets, the regular market of the Warsaw Stock Exchange and the New Connect market, for smaller and younger firms. Descriptive statistics show that companies on the NewConnect market have higher equity financing and a higher level of intangibles than companies listed on the WSE.

The first hypothesis was related to debt and intellectual capital influence.

$H1_0$: There should be no relation between debt (leverage) and the amount of intangible assets a firm possesses.

$H1_1$: There should be a negative relationship between debt (leverage) and the amount of intangible assets a firm possesses.

The empirical results indicated that there is a negative relation between the intangible assets of a company and its leverage based on the samples of both markets.

The second hypothesis was related to the equity financing of the intellectual capital investment.

$H2_0$: There should be no relation between equity capital and the amount of intangible assets a firm possesses.

$H2_1$: There should be a positive relationship between equity capital and the amount of intangible assets a firm possesses.

The equity capital is found positively related to the level of intangibles in each of the two markets, whereby the results for the main market show that there is a weak but positive correlation between equity and intangibles, while for the New Connect market this correlation is much stronger.

The third hypothesis was related to the capital structure.

$H3_0$: There should be no relationship between capital structure indicators and with the amount of intangible assets a firm possesses.

$H3_1$: There should be a negative relationship between capital structure indicators and with the amount of intangible assets a firm possesses.

The third alternate hypothesis is supported by a negative relationship between the capital structure ratio of total debt to equity and intangibles. The higher the intellectual capital investment the lower the leverage of a company.

This analysis is subject to a limitation regarding the concept of intellectual property in a company. Based on Financial Accounting, the crucial aspect of intangibles is whether they should be recognized as assets in the balance sheet, or charged as expenses in the income statement. For the former case to hold, intangibles should be separable. So, many intangibles may be considered as assets but may not be reported on the balance sheet, depending on the financial accounting standards of each country. In the balance sheet there can be found copyrights, franchises, patents, trademarks, brand names, etc. On the other hand, advertising and promotion expenses, restructuring costs, organizational costs, training costs, corporate culture, customer loyalty and employee satisfaction are appearing together under Goodwill. In the current study this problem was solved by using as proxy the value of the intangible assets that is reported in the database Notoria for each of the companies listed on the Warsaw Stock Exchange. Specifically, in the balance sheet the intangibles are given as non-material assets and intellectual property in the fixed assets section.

These results are significant and of interest to the academicians enriching the pertinent literature, especially in transition economies. The findings contribute to the literature in the following ways: First, some light was shed on the issue of intangible assets and their impact on the capital structure of companies in developing economies in transition. The existing studies were focused mostly on the developed economies and mainly the USA market. These results complement the studies of Long and Malitz (1985), Williamson (1988) and Hall (1992) regarding the negative relation between leverage and the intangible assets of companies, focusing on a developing market. The Polish economic development level can be compared to the USA in the 1980s so the findings from that time can be applied to the current Polish situation. Second, different results were found by Ozdemir et al. (2012), who also investigated a developing market, Turkey, since the present findings have not confirmed the latest practice and their empirical results regarding the fact that in developing markets those firms with more innovative

opportunities use their intellectual property as collateral (in the form of intangible assets or R & D and advertising expenses) to increase their debt capacity. This point is very interesting, since there exist two opposite views, most critical for the debt policy and strategy managers in developing markets could adopt for their companies. Since it is not resolved it could be investigated further for more developing economies, in a future research paper.

These findings are crucial for corporate managers in Poland who are responsible for the financing decisions of their company to help them select the best combination of leverage and equity in their company's capital structure in order to maximize the value of their company. The present findings are also important for the managers to help them determine the percentages of short and long term debt in their working capital and financing decisions. Future research could investigate these issues that were examined in the present paper for each industrial sector and by firm size for Polish companies.

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**Table 1: Descriptive Statistics for WSE (4284 cross-sectional observations)**

| Variables | Mean | Minimum | Median | Maximum | Standard Deviation |
|---|---|---|---|---|---|
| DR | 0,4839 | 0,0009 | 0,4401 | 11,865 | 0,4891 |
| E/TA | 0,6948 | -13,367 | 0,6836 | 7,6393 | 0,6253 |
| LTDR | 0,1008 | 0 | 0,0615 | 1,0759 | 0,1179 |
| STDR | 0,4014 | 0,0009 | 0,3423 | 11,865 | 0,4835 |
| INT/TA | 0,0295 | 4,9349 | 0,0056 | 0,8949 | 0,0728 |
| TDER | 0,9513 | -124,75 | 0,6035 | 96,01 | 3,4416 |
| DER | 0,1985 | -50,943 | 0,0849 | 31,583 | 1,2642 |

**Table 2: Descriptive Statistics for NC (1062 cross-sectional observations)**

| Variables | Mean | Minimum | Median | Maximum | Standard Deviation |
|---|---|---|---|---|---|
| DR | 0,5005 | 0,0026 | 0,4478 | 6,9498 | 0,444 |
| E/TA | 0,8693 | -2,1944 | 0,7883 | 16,142 | 0,7757 |
| LTDR | 0,1257 | 0 | 0,059 | 3,5079 | 0,2346 |
| STDR | 0,416 | 0,0026 | 0,3438 | 6,9498 | 0,4057 |
| INT/TA | 0,1094 | 0 | 1,7431 | 0,9767 | 0,1908 |
| TDER | 1,0573 | -104,47 | 0,5167 | 67,421 | 5,015 |
| DER | 0,2087 | -11,176 | 0,085 | 23,001 | 1,1487 |

**Table 3: Pearson Correlation Coefficients for WSE**

| Variables | INT/TA |
|---|---|
| E/TA | 0.069*<br>(0.000) |
| TDER | -0.028**<br>(0.0674) |
| DER | -0,015<br>(0.385) |
| DR | -0.028**<br>(0.0671) |
| LTDR | -0.055*<br>(0.001) |
| STDR | -0,019<br>(0.215) |

*The first number is the Pearson Correlation Coefficient.*
*The second number is the (p- value).*
** Statistical significance at the 5% level.*
*** Statistical significance at the 10% level.*

**Table 4: Pearson Correlation Coefficients for the New Connect Market**

| Variables | INT/TA |
|---|---|
| E/TA | 0.203*<br>(0.000) |
| TDER | -0,031<br>(0.309) |
| DER | -0,044<br>(0.249) |
| DR | -0.065*<br>(0.034) |
| LTDR | -0,019<br>(0.601) |
| STDR | -0,036<br>(0.248) |

*The first number is the Pearson Correlation Coefficient.*
*The second number is the (p- value).*
** Statistical significance at the 5% level.*
*** Statistical significance at the 10% level.*

**Table 5: Regression Analysis for WSE (number observations 4642)**

| Dependent Variable | Independent Variable | a-coefficient | beta-coefficient | t-statistic | P-value | Adj. R2 | F | P-val. for F |
|---|---|---|---|---|---|---|---|---|
| E/TA | INT/TA | 0,72 | 0,38 | 1,04 | 0,3 | 0,00002 | 1,07 | 0,3 |
| DER | INT/TA | 0,18 | −0.25 | −0.96 | 0,34 | -0,0002 | 0,92 | 0,34 |
| TDER | INT/TA | 0,74 | −0.55 | −0.18 | 0,86 | -0,0002 | 0,03 | 0,86 |
| LTDR | INT/TA | 0,08 | −0.05 | −2.09 | 0.04* | 0,0007 | 4,36 | 0,04 |
| DR | INT/TA | 0,5 | −0.24 | −1.83 | 0.07** | 0,0005 | 3,34 | 0,07 |
| STDR | INT/TA | 0,42 | −0.19 | −1.45 | 0,15 | 0,0002 | 2,09 | 0,15 |

** Statistical significance at the 5% level .*
*** Statistical significance at the 10% level .*

**Table 6: Regression Analysis for the NewConnect (number observations 1450)**

| Dependent Variable | Independent Variable | a-coefficient | beta-coefficient | t-statistic | P-value | Adj. R2 | F | P-val. for F |
|---|---|---|---|---|---|---|---|---|
| E/TA | INTG/TA | 3,47 | −5.21 | −0.42 | 0,68 | -0,006 | 0,17 | 0,68 |
| DER | INTG/TA | 0,18 | −0.27 | −1.82 | 0.07 ** | 0,002 | 3,3 | 0,07 |
| TDER | INTG/TA | 1,45 | −1.47 | −1.10 | 0,27 | 0,0001 | 1,2 | 0,27 |
| LTDR | INTG/TA | 0,09 | −0.07 | −1.97 | 0.05* | 0,002 | 3,87 | 0,05 |
| DR | INTG/TA | 0,5 | −0.13 | −1.71 | 0.09 ** | 0,001 | 2,91 | 0,09 |
| STDR | INTG/TA | 0,42 | −0.06 | −0.92 | 0,36 | -0,001 | 0,84 | 0,36 |

** Statistical significance at the 5% level .*
*** Statistical significance at the 10% level .*